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## **Measuring Access to Food in Developing Countries: The Case of Latin America**

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# Measuring Access to Food in Developing Countries: The Case of Latin America

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## Abstract

The participants at the food summit organized by the Food and Agriculture Organization (FAO) in 1996 pledged to reduce the number of hungry by half by 2015. Measuring and quantifying food insecurity is a crucial component of making progress towards that goal. This paper presents one possible approach towards measuring what share of the population might be affected by food insecurity and to what extent. A food security threshold can be calculated as the sum of the cost of a food basket and the cost of other basic necessities. This food security threshold can then be compared to available income. We calculated two food security threshold levels, one based on a representative healthy food basket and one based on a low-cost healthy food basket. The approach is illustrated for nine lower income Latin American countries. To examine the implications of skewed income distribution on food security, we allocated national income across five income groups within each country according to income distribution data from the World Bank and then compared these per capita income levels of the five quintiles to the food security thresholds. Honduras and Nicaragua were found to be the most food insecure countries with 40 percent of the population estimated to be unable to afford the healthy low-cost food basket.

## Keywords:

Food security, food access, Latin America, Central America, South America, food basket, food security threshold (FST), nutritional requirement, poor.

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## **Introduction**

Food insecurity is widespread across the globe and the international community has placed elimination of famine and hunger on its agenda. The participants at the food summit organized by the Food and Agriculture Organization (FAO) in 1996 pledged to reduce the number of hungry by half by 2015. Measuring and quantifying food insecurity is a crucial component of making progress towards that goal. This paper presents one possible approach towards measuring what share of the population might be affected by food insecurity and to what extent. A food security threshold can be calculated as the sum of the cost of a food basket and the cost of other basic necessities and this food security threshold can then be compared to available income. The approach is illustrated for nine Latin American countries, all of which have segments of their populations that are considered vulnerable.

Inadequate purchasing power is generally viewed as the main cause of food insecurity. The cost of a basket of food relative to income is a practical indicator of food security. Any decline in food costs and/or increase in income are expected to improve food security of a household. With the estimation of the gap between per capita income and the cost of a basket of food as well as other basic necessities and it is possible to determine the number of people who lack the purchasing power to satisfy their basic needs. This indicator can also be used to compare food costs-income ratios at the household level in different regions of a country or across countries. Monitoring the changes in food costs relative to the purchasing power of consumers will also provide information on the effectiveness of government food security policies, the efficiency of marketing systems, and the investment required in addressing the problems of food security.

The reasons for differences in basic food costs either at regional levels or among countries are differences in domestic policies and marketing systems. If agricultural markets are impeded by distortions in government policies or by distortions arising from the monopoly power of processors or handlers, and if effective institutions to facilitate production and marketing are not in place, the marketing mechanism will fail. This failure will increase the cost of food and thus the gap between effective food demand and basic nutritional requirements. Similarly, slow

income growth and/or skewed income distribution limits gains in purchasing power in the poorest income groups and thus economic access to food.

Other measures of food insecurity typically focus on the number of hungry or undernourished people. These estimates and projections rely on average calorie consumption data, on measures of distribution of consumption, and on an estimate of the minimum nutritional requirement for each country. These statistics are generally resource-intensive to obtain and are consequently updated annually or every few years. Local or seasonal differences cannot easily be reflected in these country statistics. Some of these problems are encountered by the ERS food security assessment model, which is used for the annual estimation of food gaps for 67 low-income countries. Most of the model's data series are updated annually, drawing from data sources such as the U.S. Department of Agriculture, the World Bank, and FAO. This model is useful in that it provides a global overview of the food security situation.<sup>2</sup> However, it is not as suitable for monitoring the progress of food security in a particular country over the course of a year as the food basket approach. The cost of a food basket can reflect seasonal and local differences provided that appropriate price data are available. The "cost of a food basket" approach to monitoring food insecurity has more flexibility to target vulnerable regions and populations on a timely basis.

## **Methodology**

In this study, retail prices for several food items for nine lower income countries in Latin America are used to calculate the cost of two kinds of food baskets: a *representative healthy* food basket and a *low-cost healthy* food basket. The *representative healthy* food basket fulfills basic nutritional guidelines while reflecting the range of foods typically eaten in each country. The *low-cost healthy* food basket is constructed in a way to satisfy nutritional guidelines at the lowest possible cost.

These two types of food baskets were calculated in recognition of the fact that income is distributed more unevenly in Latin America than in many other parts of the world. The average

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<sup>2</sup> For more information on ERS food gap projections see Shapouri, S. and Stacey Rosen, *Food Security Assessment*, various years.

Gini index for the nine countries studied here is 50.4. The poorest 20 percent of the population own an average of 3.9 percent of national income while the richest 20 percent own an average of 55.3 percent. Bearing this in mind, it is safe to assume that a variety of higher cost food items are predominantly consumed by those segments of the population that are not threatened by food insecurity. For example, wheat is mostly imported and therefore wheat products are generally more expensive than domestically grown corn or bananas and plantains. Pulses are a much cheaper source of protein than meat. The low-cost food basket concentrates therefore on the least cost representative items in each food group, thus sacrificing some diversity while still meeting nutritional requirements.

After the cost of the two food baskets are calculated, assumptions about the cost of other basic necessities are made. The sum of the cost of the food basket and the cost of other necessities can be considered as a *food security threshold*. The gap between actual incomes and the food security threshold determines the depth of food insecurity.

To estimate the purchase price of the food basket, we distributed 2,170 calories—derived from region-specific caloric standards recommended by FAO—among specific food and nutrient groups according to several criteria. These criteria included typical country food consumption patterns, FAO/World Health Organization nutritional guidelines for developing countries, and standards from various U.S. government agencies<sup>3</sup>. The diets are largely plant-based, and the goal was to have roughly 65 percent of daily calories coming from carbohydrates, 20 percent from fat, and 15 percent from protein. Respecting the diets of the countries, one or a few commodities were selected to represent each nutrient group. The *healthy representative* food basket typically included between three and six food items in the carbohydrate group, while the *low-cost* food basket only included one or two of the least cost food items. Cereals, roots and tubers, and bananas and plantains were the food items selected to represent the carbohydrate group; milk, meat or pulses were chosen to represent protein; and vegetable oils represented fat. No attempt was made to analyze the adequacy of micronutrients, such as iron or Vitamin A, in

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<sup>3</sup> The standard for the percentage of calories from carbohydrates was recommended by the National Research Council's *Diet and Health Report*, 1989; the recommendation for the percentage of calories coming from fat (less than 30 percent) comes from *Nutrition and Your Health: Dietary Guidelines for Americans*, U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2000.

the diet. However, low-calorie intake is typically closely related to low levels of consumption of a wide range of essential vitamins and minerals and a more diversified diet is more likely to prevent shortages of micronutrients.

The food items in each food group were chosen according to their importance in the country-specific diet as indicated by 1999 FAO food balance sheets and the availability of retail food prices for the food item. Food prices were mostly derived from the U.N. International Labour Office (ILO)<sup>4</sup>. The number of calories consumed per day was used to determine the share of each food item within its group. The cost of each food item was determined using domestic retail food prices, which were converted into U.S. dollars using International Monetary Fund (IMF) exchange rates. Next, the cost of each food group was calculated as the weighted average of the cost of individual food items (the weight being each food item's share as determined by calories consumed per day). This calculation resulted in a price per kg of carbohydrates, proteins, or fat.

This cost was multiplied with the number of grams eaten from each food group in order to satisfy nutritional guidelines. The daily target was 2,170 calories per capita, comprised of sixty-five percent (1,411 calories) carbohydrates, 15 percent (326 calories) protein, and 20 percent (434 calories) fat. In order to convert these calories into gram of food, the food items' respective conversion rates<sup>5</sup> were weighted according to the food items' share in the food group. The daily cost of the three food groups were aggregated and then multiplied by 365 to obtain the annual cost of the food basket.

It is unreasonable to assume that even the poorest people will spend their entire income on food. The high-income countries spend a relatively small percentage of their income on food. In the United States, for example, the percentage of consumption expenditure spent on food is roughly 8 percent. High-income countries typically spend a large share of their incomes on items that are not considered necessities, such as recreation, etc. The poorer a country, the higher the share of income spent on food. However, we still must allow for expenditures on other necessities, such

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<sup>4</sup> Statistics on Occupational Wages and Hours of Work and on Food Prices, October Inquiry results, 1999 and 2000, International Labour Office, Geneva, 2001.

<sup>5</sup> Conversion rates were used based on B.A.Schmitt, 1979, Appendix B: Calorie Content for Selected Commodities.

as housing and clothing. We assume that these other expenditures are at least equal to the cost of food (this assumption is supported by data from the UN's 1996 International Comparison Project)<sup>6</sup>. Consequently, *the food security threshold*, the income level that is sufficient to purchase food and basic necessities, is double the cost of the food basket.

Once we have determined the food security threshold, we can compare it with available per capita income. In this study we compared the food security threshold to income levels of each country's income quintiles. Quintile income levels were calculated based on World Bank data on average 1999 per capita GNP and most recently available income distribution data.

The ratio of available income and food security threshold is a meaningful indicator of food security. A ratio greater than 1 indicates that income levels exceed the threshold and therefore people in this quintile are not vulnerable to food insecurity. Any number less than 1 alerts us to the danger of food insecurity in this income quintile. The lower the number, the more severe the problem.

It is easy to link this analysis to the actual number of people who are affected since each income quintile consists of one fifth of the total population. Shifts in income distribution can have a strong impact on food insecurity.

### **Description of Diets**

Average per capita calorie levels in all nine countries are above the nutritional minimum requirement of 2,170 calories per day, with Bolivia at a low of 2,237 and Ecuador at a high of 2,679 (see table 1). However, per capita consumption in the lower income quintiles is lower than this national average and therefore is likely to fall short of the nutritional minimum.

While average per capita calorie consumption is well above the minimum requirement, it is worth noting that an average of 15 percent of the calories consumed in these countries comes from sugar. These calories do not in any way contribute to a healthy and balanced diet. Protein

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<sup>6</sup> ERS calculations based on UN data for the share of personal consumption expenditures spent on food also support this finding. See as an example table 101 in Putnam, J. and J.E. Allshouse, 1999.



consumption averages 60 grams per person per day, which amounts to 240 calories, or 9.6 percent of the diet. Protein consumption is the lowest in Ecuador, with 56 grams per capita per day or the equivalent of 8.4 percent of the daily diet; it is the highest in Peru, with an average of 66.5 grams per capita or 10.1 percent of the daily diet.

Table 1

Nutritional Indicators: 1999 Daily Per Capita Consumption

	Calorie	--Protein--			--Fat--			Sugar	
		Grams	calories	Percent	grams	calories	Percent	calories	Percent
Bolivia	2,237	56	226	10.1	67.3	572.1	25.6	273	12.2
Colombia	2,567	59	235	9.1	67.2	571.2	22.3	492	19.2
Dominican Rep	2,333	50	200	8.6	81.3	691.1	29.6	377	16.2
Ecuador	2,679	56	224	8.4	87.4	742.9	27.7	457	17.1
El Salvador	2,463	61	245	9.9	57.3	487.1	19.8	404	16.4
Guatemala	2,331	59	235	10.1	51.0	433.5	18.6	420	18.0
Honduras	2,396	58	230	9.6	68.2	579.7	24.2	367	15.3
Nicaragua	2,314	62	246	10.6	51.4	436.9	18.9	232	10.0
Peru	2,621	67	266	10.1	49.6	421.6	16.1	372	14.2
<b>Average</b>	<b>2,438</b>	<b>59</b>	<b>234</b>	<b>10</b>	<b>65</b>	<b>548</b>	<b>23</b>	<b>377</b>	<b>15.4</b>

Source: FAOSTAT, FAO, 2002.

In our food basket, we include a protein food group targeted at 15 percent of the diet. This is an approximation. The food items in the protein group (meat, milk, pulses) have a relatively high protein content, but only about half of their calories are derived from protein, with the other half coming from fat or carbohydrates. We therefore capture only about 7 or 8 percent of protein consumption in this group. On the other hand, cereals contain protein and contribute roughly 5 percent of protein to the average diet. These two protein components sum to about 12 to 13 percent, which coincide with Latin American dietary recommendations of 12 percent protein in the daily diet. U.S. dietary guidelines suggest roughly 15 percent<sup>7</sup>.

<sup>7</sup>U.S. dietary guidelines recommend the following: the share of carbohydrates should be more than 55 percent, the share of fat less than 30. That leave roughly 15 percent for protein.

Fat consumption averages 22 percent, which satisfies the U.S. dietary guidelines that recommend less than 30 percent. Fat consumption is the lowest in Peru with less than 50 grams per capita per day (16 percent of the daily diet) and is the highest in Ecuador, with 87.4 grams or 28 percent of the daily diet. The healthy food basket has a fat group that aims at 20 percent of calories. After the fat contents from the products in the protein group (milk and meat) is added the overall fat contents of the healthy food basket is approximately 25 percent.

## **Results**

In the nine Latin American countries covered in this analysis, annual per capita incomes ranged from \$430 in Nicaragua to \$2,390 in Peru in 1999 (see table 2). The annual cost of a low-cost food basket averaged \$130, ranging from a low of \$88 in Guatemala to a high of \$154 in Colombia (see table 3). While average per capita incomes appeared to cover the cost of the low-cost food basket, we must allow for expenditures on other necessities, such as housing and clothing. We assume that these other expenditures are at least equal to the cost of the food basket (as discussed earlier). Consequently, the food security threshold to purchase food and basic necessities is double the cost of the food basket, averaging \$260, with a low of \$176 in Guatemala and a high of \$309 in Colombia (see table 3). Average incomes are still above this threshold in all nine countries, but because incomes are distributed unevenly, some segments of the populations face inadequate purchasing power and may suffer food insecurity.

One interesting point to glean from the data is the price differential between local prices and international prices. In general, the local prices for the staple commodities far exceeded international prices, which comes as no surprise as international prices are wholesale prices and the prices used to evaluate the food basket are retail prices. Furthermore, international prices are quoted for bulk grains, whereas the cereal items in the food basket are in part represented by processed foods (such as wheat bread). The retail prices therefore not only reflect the commodity price, but also include a labor and service component. Corn is a staple grain for nearly every country included in this study. The price of corn was, for the most part, the retail price for whole grain corn. In most countries, the retail price for corn was found to be between 3 and 4 times the value of the international price.

Table 2

## Per Capita Income and Population

	GNP p cap	Population
	1999	1999
	U.S. dollar	Million
Bolivia	1010	8.142
Colombia	2250	41.564
Dominican Rep	1910	8.364
Ecuador	1310	12.411
El Salvador	1900	6.154
Guatemala	1660	11.090
Honduras	760	6.316
Nicaragua	430	4.938
Peru	2390	25.230

Source: World Development Indicators, World Bank 2001,  
United Nations, USDA/ERS.

Table 3

## Food Basket Cost in 1999

	Annual cost of healthy food basket		Food Security Threshold	
	representative	low-cost	representative	low-cost
	U.S. dollars			
Bolivia	287	119	575	239
Colombia	298	154	595	309
Dominican Rep.	287	119	575	238
Ecuador	208	137	416	273
El Salvador	210	149	419	299
Guatemala	162	88	324	176
Honduras	243	138	486	275
Nicaragua	166	132	332	263
Peru	304	136	608	272
<b>Average</b>	<b>241</b>	<b>130</b>	<b>481</b>	<b>260</b>

Source: USDA/ERS, authors' calculations.

The impact that food prices can have on food security is illustrated by the example of Guatemala. Corn is by far the most important staple in the diet of the typical Guatemalan. On average, close to 1,000 calories are consumed in the form of corn per day, more than 50 percent of total consumption (excluding sugar). Given the fact that the ratio of its local corn price to the international price is the lowest in the region—the retail price is merely 2.5 times the international price—the cost of the representative and the low-cost food basket is the lowest of the nine countries studied here. Consequently, the food security threshold is lower and less people are threatened by food insecurity.

To examine the implications of skewed income distribution on food security, we allocated national income across five income groups within each country according to income distribution data from the World Bank (table 4). We then compared these per capita income levels of the five quintiles to the food security threshold. On average, incomes in the lowest income group are about even to the food security threshold for the low cost basket (see table 5). Conversely, incomes for the highest income group were about 16 times higher than the threshold level. With respect to individual countries, the income level of all five quintiles in Bolivia, Columbia, the Dominican Republic, Ecuador, El Salvador, and Peru exceeded the threshold level to purchase food and basic necessities. This means that less than 20 percent of the population in these five countries are vulnerable to food insecurity. In Guatemala, roughly 20 percent of the population had insufficient purchasing power to afford the necessities. The same was true for about 40 percent of the people in Honduras and Nicaragua, by far the poorest of the nine countries.

To measure any changes in the food security of these countries over time, we assumed a general food price increase of 2.5 percent per year (in real terms) and real income growth equal to each country's recent growth path. We made assessments for 2010, and in general the situation is projected to remain relatively unchanged. The six countries that were least vulnerable in 1999—with all income quintiles meeting the threshold level—are projected to remain the same in 2010. The two most vulnerable countries—Honduras and Nicaragua—are projected to remain as such with roughly 40 percent of their populations not being able to afford the necessities. There were cases of small improvements or deteriorations within countries, however, which reflect variations in income growth.

Table 4

## Income Inequality

	Gini index	Year of study	10%	1st	2nd	3rd	4th	5th
Bolivia	42.0	1990	2.3	5.6	9.7	14.5	22	48.2
Colombia	57.1	1996	1.1	3.0	6.6	11.1	18.4	60.9
Dominican Rep	48.7	1996	1.7	4.3	8.3	13.1	20.6	53.7
Ecuador	43.7	1995	2.2	5.4	9.4	14.2	21.3	49.7
El Salvador	52.3	1996	1.2	3.4	7.5	12.5	20.2	56.5
Guatemala	59.6	1989	0.6	2.1	5.8	10.5	18.6	63.0
Honduras	53.7	1996	1.2	3.4	7.1	11.7	19.7	58.0
Nicaragua	50.3	1993	1.6	4.2	8.0	12.6	20.0	55.2
Peru	46.2	1996	1.6	4.4	9.1	14.1	21.3	51.2

Source: World Development Report 2000/2001, World Bank, 2001.

Table 5

## Ratio of income to threshold (low-cost basket), 1999

	Income quintiles				
	1st	2nd	3rd	4th	5th
Bolivia	1.18	2.05	3.07	4.66	10.20
Colombia	1.09	2.41	4.05	6.71	22.20
Dominican Rep.	1.73	3.34	5.26	8.28	21.58
Ecuador	1.29	2.25	3.40	5.10	11.91
El Salvador	1.08	2.39	3.98	6.43	17.97
Guatemala	0.99	2.73	4.94	8.75	29.63
Honduras	0.47	0.98	1.62	2.72	8.01
Nicaragua	0.34	0.65	1.03	1.63	4.51
Peru	1.93	4.00	6.19	9.36	22.49
<b>Average</b>	<b>1.12</b>	<b>2.31</b>	<b>3.73</b>	<b>5.96</b>	<b>16.50</b>

\* A ratio < 1 indicates that incomes fall short of threshold level;  
a ratio > 1 indicates that incomes exceed the threshold level.

Source: USDA/ERS, author's calculations.

In addition to the low-cost food basket, we also made an assessment for a representative, healthy food basket, which obviously is higher priced (see Appendix for complete list of commodities

included). Consistent with this is the finding that incomes did not go as far in meeting the food security threshold for this type of food basket. In this case, the lowest income group in all countries fell short of meeting the food security threshold in 1999 (see table 6). This means that at least 20 percent of the population of these nine countries could not afford the healthy food basket and other necessities. Incomes in Peru measured the closest to meeting the target level as per capita income in the lowest income group was 87 percent of the threshold level. In Bolivia, 40 percent of the population had incomes below the food security threshold. Reflecting the vulnerability of the poorest people in these countries, incomes in this lowest quintile in Honduras and Nicaragua were only 27 percent of the threshold level. In fact, the three lowest income quintiles in these two countries fell short of meeting the threshold level, meaning that roughly 60 percent of the population fell short of the threshold level. These results compare well with those obtained by other food insecurity measurement approaches. USDA's annual Food Security Assessment, (USDA-ERS, 2002), employs a very different methodology to calculate the number of people threatened by food insecurity, and arrives at somewhat higher, but still comparable results.

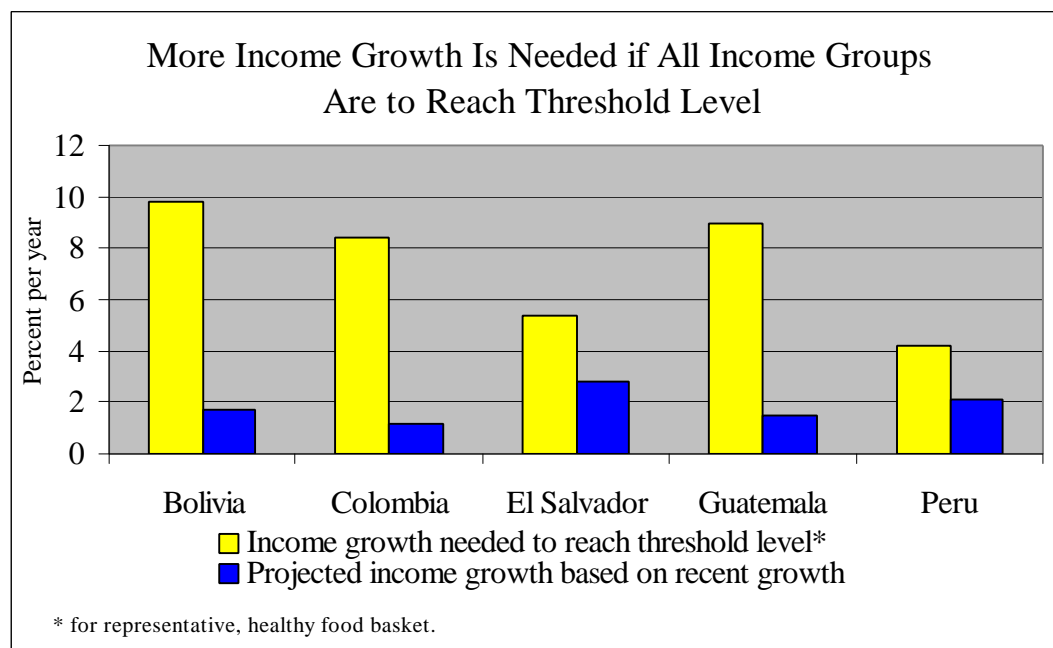
Table 6

Ratio of income to threshold (representative basket), 1999					
	Income quintiles				
	1st	2nd	3rd	4th	5th
Bolivia	0.49	0.85	1.27	1.93	4.23
Colombia	0.57	1.25	2.10	3.48	11.51
Dominican Rep.	0.71	1.38	2.18	3.42	8.92
Ecuador	0.85	1.48	2.23	3.35	7.82
El Salvador	0.77	1.70	2.83	4.58	12.80
Guatemala	0.54	1.49	2.69	4.77	16.16
Honduras	0.27	0.56	0.92	1.54	4.54
Nicaragua	0.27	0.52	0.82	1.30	3.58
Peru	0.87	1.79	2.77	4.19	10.07
<b>Average</b>	<b>0.59</b>	<b>1.22</b>	<b>1.98</b>	<b>3.17</b>	<b>8.85</b>

\* A ratio < 1 indicates that incomes fall short of threshold level;  
a ratio > 1 indicates that incomes exceed the threshold level.  
Source: USDA/ERS, author's calculations.

Looking forward to 2010, we calculated the income growth necessary for the lowest income group in all these countries to reach the threshold level for the representative, healthy food basket. For the Dominican Republic, El Salvador, and Peru, this growth would be twice the rate that incomes have grown in these countries in recent years (see figure 1). For the remaining countries, however, the growth rate necessary to achieve the threshold level far exceeds their recent growth paths. In Colombia and Guatemala, for example, it is estimated that incomes need to grow between 8 and 9 percent per year for per capita incomes in the lowest quintile to reach the threshold level by 2010. In our projections, growth of less than 2 percent per year was assumed. Given these results, it can be assumed that the lowest income groups are in danger of remaining vulnerable to food insecurity with respect to a representative, healthy food basket through the end of the decade.

Figure 1



## Conclusions

The food basket approach relies on good quality price and income data. Once these data are available, the food insecurity situation can be monitored not only across countries but within countries, by taking into account that incomes and food prices vary considerably from one region to another and between urban and rural areas. In Latin America, the indigenous population in

particular and people living in rural areas in general are most vulnerable to food insecurity. These groups are likely to be among the lowest three income quintiles. Policies designed to lower the food security threshold or improve incomes for these groups will have the most impact on reducing food insecurity.

Of the nine countries studied here, Honduras and Nicaragua stand out as the most food insecure with at least 60 percent of their populations unable to afford the representative healthy food basket. However, as the results indicated, the lowest income group in all countries was vulnerable with incomes equaling only 60 percent of the threshold level for the representative basket.

Monitoring the prices of key commodities in the healthy food basket can give policy makers a tool to use to stay informed about the food security situation. Progress in eliminating food insecurity can potentially be measured as well as effects on food security as reflected in prices or incomes as a response to any kind of shocks, such as political or weather-related shocks. Policies that target the low-income quintiles, either by improving their incomes or by keeping their healthy food basket affordable, and thus distribute incomes more evenly are more likely to be successful than aiming for seemingly unattainable average income growth rates that might eventually trickle down to the lowest income quintiles.



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## Appendix

### Food Basket Overview

	<i>Carbohydrates</i>				<i>Protein</i>			
	<b>Representative</b>	<b>Percent</b>	<b>Low-cost</b>	<b>Percent</b>	<b>Representative</b>	<b>Percent</b>	<b>Low-cost</b>	<b>Percent</b>
Bolivia	Wheat	26	Maize	100	Meat, bovine	27	Milk	50
	Maize	31			Pigmeat	6		
	Rice	23			Poultry	12		
	Potatoes	10			Milk	49		
	Bananas/Plantains	10			Pulses	7		
Colombia	Wheat	18	Corn	100	Milk ex. butter	66	Milk ex. butte	50
	Corn	29			Pulses	19	Pulses	50
	Rice	26			Meat, poultry	15		
	Potatoes	8						
	Cassava	7						
	Bananas/Plantains	12						
Dominican	Rice	65	Wheat	100	Milk ex. butter	30	Milk ex. butte	50
	Wheat	29			Meat, poultry	23	Pulses	50
	Cassava	6			Beef&Pork	26		
Ecuador					Pulses	20		
	Rice	42	Rice		Milk ex. Butte	42	Milk ex. butte	50
	Corn	10			Pulses	9	Pulses	50
	Wheat	31			Meat (bf)	29		
	Bananas/Plantains	17			Poultry	19		
El Salvador	Maize	93	Maize	96	Milk ex. butter	50	Milk ex. butte	50
	Wheat	3			Meat (bf,pk)	12	Pulses	50
	Bananas/Plantains	4			Pulses	38		
Guatemala	Maize	79	Maize	100	Milk ex. butter	28	Milk ex. butte	50
	Wheat	21			Meat (bf,pl,pk)	31	Pulses	50
Honduras					Pulses	41		
	Maize	77	Maize	100	Milk ex. butter	57	Milk ex. butte	50
	Wheat	23			Meat (bf,pk,pl)	24	Pulses	50
					Pulses	19		
Nicaragua	Maize	47	Maize	62	Milk ex. butter	25	Milk ex. butte	50
	Rice	29			Meat, bovine	18	Red Beans	50
	Wheat	24			Red Beans	57		
Peru								
	Rice	38	Corn	54	Milk ex. butter	34	Milk ex. butte	50
	Wheat	28			Meat/Fish	36	Pulses	50
	Potatoes	16			Pulses	30		
	Corn	10						
	Cassava	9						